THE IDEAL SIMPLEX JOINTED CAR AXLE.

Every railroad man knows that there is considerable slippage of the wheels, when a train is rounding a curve. The result is that much more power is required, and flat surfaces are worn on the wheels. In order to overcome this, Mr. W. H. Law, M.E., has devised the axles herein described and illustrated.

These axles have a journalled joint in the middle, of simple construction. They are said to possess greater strength and durability than the solid axles, may be readily applied to existing rolling stock, require no extra attention, automatically lubricated and reliable, the joint being practically unbreakable.

This jointed axle provides means whereby two wheels of unequal diameter fixed upon the same axle will travel together upon any part of the track and maintain their true position to both car and track, without either wheel skidding along the rail, the smaller wheel and one half the axle making a greater number of revolutions per mile of travel than the larger wheel, as theoretically required.

This jointed axle will permit wheels of equal or unequal diameter to travel freely on any curve and retain the axles parallel to the radial line of the curve, thus entirely obviating the constant tendency of the wheel flanges to crowd against the outer rail; they will also prevent the skewing of tracks and greatly reduce the friction and wear between the wheel flanges and rail head. At the same time less power will be required to haul the train, insuring a greater degree of safety and eliminating torsion stresses in the axle. Under the present system, of rigid axles and wheels, two wheels of equal diameter running in a curve, the wheels on the outer and longer rail cannot revolve more frequently than the wheel on the inner and shorter rail, consequently the axles are never parallel to the radial line of the curve, but the trucks are always in a skewed position on the track, resulting in the flanges of the front wheel being forced with great pressure against the head of the outer rail and sometimes forced over it, and always tending to spread the rails.

The skewed position the car trucks usually occupy when travelling around curves, and which position they frequently retain for a considerable distance after they leave the curve, is caused by the wheels on the inner and shorter rail getting ahead of their fellow wheels on the outer rail, the latter having the greater distance to travel. Therefore, if the laggard wheels are to regain their proper position on the track, and the truck run at right angles to the centre line of the car, after leaving a curve, the wheels on one end of the axle must, and do skid along the rail, causing wear of wheel tread and rail head, involving an extra amount of power to haul the train.

With the "Simplex Jointed Axle" in use, no skidding will take place, each wheel and one half of the axle being independent of its fellow on the other half of the axle, revolve freely along either rail, therefore the trucks will retain their proper position in relation to car and track, either on a curve or tangent.

It frequently happens that a wheel has to be removed from an axle for causes, such as broken flanges, flat treads, etc., but its fellow wheel is good and sound, neither wheel having run half their guaranteed mileage, but both somewhat reduced in diameter. Now there is always a difficulty in getting a wheel to replace the defective one and be of equal diameter to the one on the axle, a new wheel is out of the question, as it may be considerably larger in diameter. Therefore, both wheels have to be removed. Under passenger cars, parlor cars, sleeping cars, etc., the wheels are steel tired, but they wear flat in spots and irregular in form, sometimes one tire will be softer than its mate and wear faster on the tread; from either of these causes the wheels must be removed from the car and sent to the shops to be trued up, then the good tire must be reduced to the same diameter as the defective one to obtain equal travel, and avoid slip on the rails, thus a considerable loss is sustained by having to reduce the good tire to the diameter equal to the defective one.

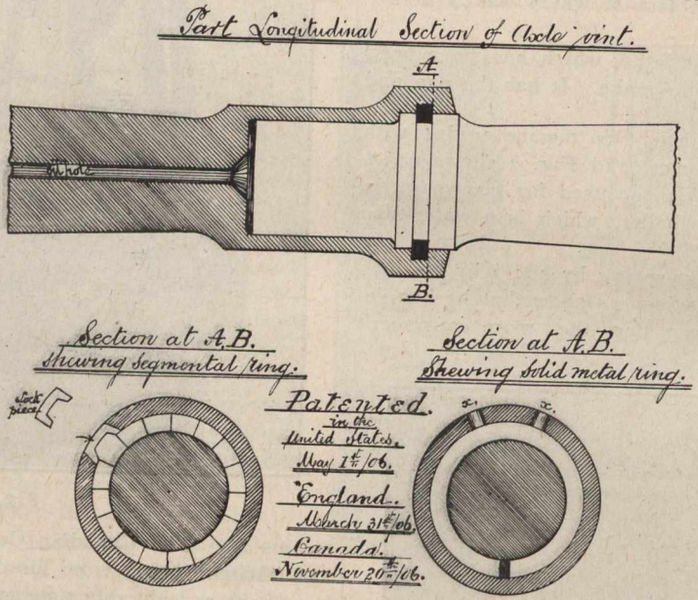
By using the "Ideal Simplex Jointed Axle" the before mentioned losses will disappear, because wheels of unequal diameter can be used on the same axle without risk, or slip. Therefore, in a tire with flat tread it is simply a case of trueing it up regardless of its diameter.

Either half of this axle can be renewed should it become injured from any cause, for instance, journals are frequently destroyed by becoming hot.

This is a distinct advantage over the solid axle as the whole axle must be scraped if one journal is injured.

With reference to the wearing qualities of the joint, there is not a doubt of the joint outwearing the main journals, because no movement takes place in the joint only at the time the car is travelling around a curve, then the revolutions are slow and few. On a straight track there is no movement in the joint. Unless there should be a variation in diameter of the two wheels on the same axle, then the movement is slow and only enough to compensate for the difference between the number of revolutions of the large and small wheels per mile of run.

The load on the joint is small in comparison to the loads on the main journals, therefore, its journal friction will be low and the wear practically nil. The joint is lubricated from the axle-box through a hole through the centre of the axle, in one half only.



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